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Archaeology of the first recorded petroglyphs for the Darwin region

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ABSTRACT

This paper presents preliminary research into petroglyphs located on Middle Arm Peninsula 16 km south-east of Darwin city. This research was carried out in response to queries on the origin of the petroglyphs in a region not previously known for rock art. Examination of weathering and style characteristics of the rock art and the technique by which it is made, to ascertain possible origins and chronology, found that these petroglyphs are typical of widely distributed Aboriginal 'Panaramitee' pecked geometric and track designs. They are unlikely to be older than nearby middens dated to around 2000 years old, and could have been made within the last century by Aboriginal people coming into the Darwin region, but there is nothing to suggest a non-Aboriginal origin.

KEYWORDS: Petroglyphs, Panaramitee, middens, Darwin, Northern Territory.

INTRODUCTION

Questions have recently arisen, stimulated by Native Title proceedings, over the origin of petroglyphs, or pecked rock markings, at two locations on Middle Arm Peninsula, 16 km south-east of Darwin city. These are the only examples of Aboriginal rock art recorded thus far for the greater Darwin region; a region not previously known for rock art but one that is in proximity to areas that have major rock art traditions, such as Kakadu National Park some 200 km to the east. Middle Arm Peninsula is positioned between the Blackmore and Elizabeth Rivers that feed into Darwin Harbour (Fig. 1). The sites are located at the mouth of the Blackmore River adjacent to a section of Middle Arm known as Haycock Reach. One site (Site 1) was first recorded by one of the authors (Bourke) during an archaeological survey conducted in 1993 as part of her honours thesis research (Burns 1994). Additional features were noted at this site by the authors during field investigations in late 2002. Batchelor Institute of Indigenous Tertiary Education students noticed the second location of rock art (Site 2) in 1999 during a field visit to the area. This paper presents a preliminary recording and analysis of the petroglyphs at these two sites, and addresses some issues as to their possible origin and chronology.

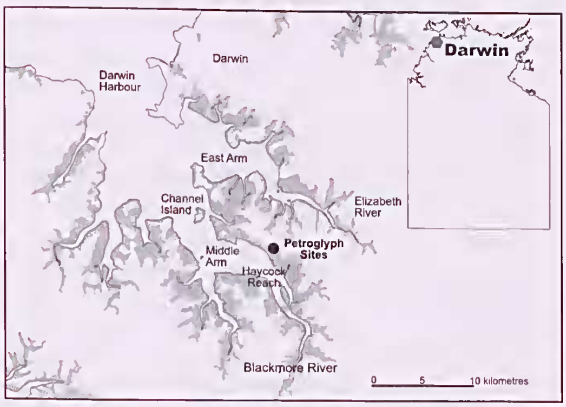

Fig. 1. Location of petroglyph sites on Middle Arm Peninsula, Darwin Harbour.

THE PETROGLYPHS

Unlike the coasts of Arnhem Land and the Kimberleys, which are backed by upland plateaus and ranges of resilient quartzitic sandstones where Aboriginal rock art abounds, the Darwin coastal landscape is one of low relief and soft rocks, and consequently suitable places for rock art are rare. The topography of Middle Arm Peninsula, the largest of many promontories jutting into Darwin Harbour, comprises undulating low ridges and hills 15–40 m high, formed on shales, siltstones and sandstones of the Proterozoic Burrell Creek Formation (Caldwell 1983; Hiscock and Hughes 2001; Pietsch 1986). These low hills and ridges are cut through with ephemeral wet season creeks and covered with tropical savanna eucalypt woodland and patches of monsoon vine forest. The recorded petroglyphs are on low sandstone outcrops at the foot-slopes of the low hills, adjacent to a narrow stretch of saltpan that separates the hinterland

from the thick mangrove fringe of the peninsula's southern shoreline.

The petroglyphs first recorded in 1993 are on a near horizontal section (dip 15°) of an undulating panel, on the northern portion of a 9x9 m sandstone outcrop, typical of others in the local area (Fig. 2). The outcrop on which these petroglyphs occur rises a maximum of 2 m and slopes down to the seaward side, 10 m from the extensive mangrove fringe of Haycock Reach. About 250 m to the south-east of this site (Site 1), along the same stretch of shoreline, is the second petroglyph site, designated Site 2. This petroglyph is situated on a vertical surface of the north-western aspect of a weathered panel of rock at the western end of a sandstone hillock (Fig. 3).

Site 1 petroglyphs include a circular ring 155–170 mm in diameter, with a central pit. Two motifs resembling 'emu' tracks with a north-south orientation are situated alongside the circular motif (Fig. 4). The pit inside the ring is approximately 40 mm in diameter and 13 mm deep. It is deeper than the circle ring and track motifs, which are quite shallow and have diffuse, crenellated edges (Fig. 5). The pecked surface of the circle has a scalloping effect that is irregular, of 14–18 mm thickness – narrower than the thickness of the pecked ring outline (28 mm). This effect is more pronounced than in the track motifs, which, although of similar thickness in pecked area (26 and 28 mm) to the ring, appear more smoothed out. The track motifs are each about 90 mm long and 70 mm across the full width of the 'outer toes'.

Fig. 2. Site 1, view looking north-east over sandstone outcrop containing petroglyphs.

Fig. 3. View of Site 2, looking south-east toward sandstone outcrop: the petroglyph is situated on the vertical rock face adjacent to a large tree.

Fig. 4. Site 1, ring and pit and 'emu' track pair petroglyphs on curved and sloping sandstone surface; scale 10 cm.

Fig. 5. Detail of cup and ring motif, Site 1; note the scalloped nature of the pecked surfaces.

During investigations in 2002, one of the authors (Mulvaney) noticed additional rock markings at Site 1, comprising 13 pecked pits (cupules) in a roughly oval pattern (100x200 mm), positioned on the surface of a near vertical sloping lower section of the rock formation on the seaward side (Fig. 6). These cupules, which range from 20 to 40 mm in diameter, may be distinguished from similar natural pitting of the rock surface by their regularity and smoothness at their base and edges.

At Site 2 the petroglyph comprises a single motif resembling an 'emu' track (Fig. 7). This track motif is 200 mm long and 110 mm across the width of the 'outer toes'. This motif is much larger than the track motifs at Site 1, although the thickness of the pecked area is the same (26 mm). The edges of this petroglyph are diffuse and smooth and there is no apparent scalloping.

Fig. 6. Cupule arrangement on near vertical surface of sandstone at Site 1; scale 2 cm.

Fig. 7. Single 'emu' track motif, petroglyph Site 2.

There does appear to be a deeper indentation at the base of the "middle toe" (52 mm thick), however this may simply be a factor influenced by the existence of a narrow quartz vein running through the rock here. The ratio of length of the middle and outer toes is also greater with this single motif than is the case with the track pair at Site 1.

STYLE, TECHNIQUE AND WEATHERING

Researchers generally classify Aboriginal petroglyphs in Australia in terms of characteristics such as form and style, the techniques used to produce the art, and the degree of patination. The Middle Arm Peninsula petroglyphs are reminiscent of a rock art referred to as 'the Panaramitee' style, which is widely, although sparsely, distributed across Australia (Flood 1997). In the Northern Territory this type of Aboriginal rock art occurs more frequently as one moves further inland toward desert regions (Chaloupka 1993; Gunn 2000; Layton 1992; Mulvaney 2001; Rosenfeld and Mumford 1996). 'The Panaramitee' style is characterised by a restricted range of pecked petroglyphs comprising geometric motifs dominated by circles, and includes dots, crescents, spirals and radiate designs, and motif types such as macropod and bird tracks, and to a lesser extent other animal tracks and human footprints (Maynard 1977, 1979). Circles and tracks are often found in numerical proportions to each other (Basedow 1914; Edwards 1966; Clegg 1992). Another feature of 'the Panaramitee' petroglyphs is small relative size (100–200 mm) of the motifs, although infrequently, larger images may occur.

'The Panaramitee' is generally considered to be a stylistic tradition that existed prior to the mid-Holocene, although the antiquity and extent to which it represents a homogenous body of art is debatable (Clegg 1992; Franklin 1993; Rosenfeld 1991). As David *et al.* (1999) point out, similar types of petroglyphs found elsewhere in the Territory (Fig. 8) are now known to have a more recent age, covering the period 7000 BP, dated from deposits at Ingaladdi in Wardaman country (Mulvaney 1975) to the present, as ethnohistoric records show (Flood and David 1994). Sites at Roma Gorge, central Australia, containing similar engraved circles, have been associated with 20th century ceremonial activities (Tacon 1994). This is also the case further north, on the edge of the Barkly Tablelands, although it is evident that the production of some of the art predates the advent of the mythological and ceremonial associations (Mulvaney 2001).

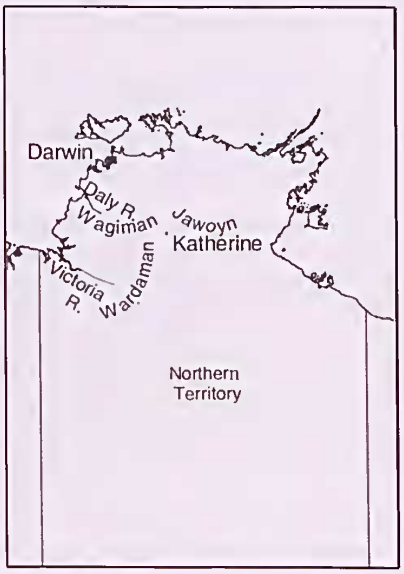

Fig. 8. Nearest occurrence to Darwin of Panaramitee type rock art tradition, in Wardaman, Wagiman and Jawoyn country.

There is a difference between the Middle Arm petroglyphs with their shallow, diffuse-edged form and common examples of 'the Panaramitee', which are finely defined, sharp-edged pitting, either by direct or indirect percussion, pecked into the rock surface with a pointed hammer stone (Maynard 1977). Rather, the Middle Arm petroglyph surfaces suggest they were made by a technique of pounding or bruising the rock surface with a large, blunted hammer. This technique of using a relatively large object to pound the rock, removing at least several millimeters thickness to produce a lower relief area of overlapping marks in the rock, is occasionally referred to as "relief pounding", as occurs in the Laura region of north Queensland (Rosenfeld *et al.* 1981) or as "conjoined punctures" in some Sydney-Hawkesbury sites (McCarthy 1988). Nevertheless, this is a known variant of Aboriginal percussion techniques that falls within Maynard's (1977) definition of pecking as making an indentation in the rock surface (Clegg 1988). Moreover, as Bednarik (1998) suggests, variables such as type of rock, depth of weathering zone, presence of moisture, direction of impact and attributes of the percussion tool may have more to do with the difference between more precise, deep percussion marks and more diffuse, shallow marks than manner of production.

It is possible that the scalloped appearance of the motif surface, particularly evident with the circle image, is a function of weathering and micro-erosion directly attributable to the changed condition of the petroglyph surface. Salt crystals were observed within the motif surface of the petroglyphs when they were first observed in 1993. It is also recorded that petroglyphs associated with the relatively soft sandstone found in Wardaman country to the south-west of Katherine are formed by a combination of pecking and abrasion (David *et al.* 1999). The sandstone of Middle Arm Peninsula appears to be of comparable softness; therefore natural weathering and/or anthropogenic factors may contribute to the particular appearance of these petroglyphs.

All the Middle Arm petroglyphs are patinated (weathered) to the same greyish/pink colour as the soft sandstone, which is an exposed saltwater eroded surface, with the lower levels of rock submerged under sand. Deeply patinated petroglyphs such as this are sometimes interpreted in conjunction with other characteristics such as subject and technique, as indicating greater antiquity than less patinated (showing more contrast with the rock) petroglyphs (eg. Lorblanchet 1992; Forbes 1983). However, the negligible contrast in patination between the rock and art surface is seen as a particular function of the local, coastal environment, not of the antiquity of the respective rock surfaces. In addition, the salt laden environmental conditions and likely erosion rate of this soft sandstone lead us to the conclusion that the petroglyphs are unlikely to be older than nearby middens dated to around 2000 years old (see below), and could be quite recent. Lewis and McCausland (1987) for example, report weathering of historic rock art in the Victoria River district, with loss of contrast to the same extent as nearby pecked Aboriginal art, over a period of less than a century.

DISCUSSION AND CONCLUSION

A number of feasible scenarios exist to explain the unique occurrence and form of these Middle Arm petroglyphs. These petroglyphs are the only known examples in the greater Darwin Region and there exist numerous un-marked sandstone outcrops in the Middle Arm Peninsula. This would seem to preclude any extended local tradition for the creation of petroglyphs. The motif style has its parallels in the arid interior and other parts of Australia, and it is possible that these petroglyphs were made within the last century by Aboriginal people coming into the Darwin region. Bednarik (1998) reported an Indjibandi man (Pilbara region, Western Australia) producing a new petroglyph at a site that was not in his traditional territory. Although there is no direct evidence, the proximity of the now abandoned Channel Island leprosarium (1914–55), some 7 km to the north-west, raises the possibility that Aboriginal people from elsewhere produced the rock markings for some purpose.

There is also the possibility that the art is much older; not produced by visiting persons during the historic period. Thus what we find at Middle Arm may simply be the remnant of a more widespread tradition of rock art production. Petroglyphs may be dated by association with occupation deposits, as Lorblanchet (1992) achieved for engraving sites and middens on the Burrup Peninsula, Western Australia. The Middle Arm cupules, ring and pit, and track pair are situated on a rock outcrop (Site 1) adjacent to a shallow Aboriginal shell midden. Nearby are two mounded middens and a sparse stone artefact scatter of mainly flaked milky quartz, all within a 20 m radius. Radiocarbon dating of one of the mounded middens gave uncalibrated conventional estimates of 1780±60 (Beta–76830) for the surface and 2430±90 (Beta–76831) for the base (Bourke 2000). One question that arises is whether the formation of the shell mound and petroglyphs may be linked in time as well as space. If the petroglyphs were made during this same period, by the shellfish gatherers who built the mounds, they may be up to a couple of thousand years old. Establishing a function of weathering rate for the sandstone would be useful in regard to determining the antiquity of the rock art.

There is no recorded comparable pictograph or petroglyph tradition in the region and certainly not the placement of so few motifs. The nearest occurrence of such features known to the authors is in the Wardaman, Wagiman and Jawoyn country, 200–270 km to the south and south-east (Fig. 8). 'Emu' track and 'cup and ring' motifs are present in Nanggumerri territory south of the Daly River. Pictographs but not petroglyphs have been recorded within the Tabletop Range, approximately 80 km southward of Darwin. This is the closest known art tradition to the Middle Arm petroglyphs. It is possible that the Middle Arm petroglyphs represent an outlier of these more widely spread rock-art traditions. Alternatively, for some unknown reason, a countryman visiting the Darwin region produced the images at Middle Arm.

A non-indigenous creative hand in the production of the Middle Arm petroglyphs is a possibility, but the authors believe this would produce characteristically different art. Aboriginal petroglyphs are usually pecked and occasionally abraded, while non-indigenous rock markings are invariably engraved and incised. If metal tools are used the rock grains and crystals are crushed, bruised and scratched, while stone hammers tend to fracture out the rock particles. It is possible the current appearance of the petroglyph surfaces were formed by natural weathering, producing a resemblance to stone hammer production. However, comparison with photographs taken in 1993 does not reveal any visible change in rock surface character. That no noticeable alteration to the sandstone surfaces has occurred in the intervening ten years, supports the idea that the petroglyphs were produced at a minimum many decades ago.

There is nothing to suggest that the Middle Arm petroglyphs are of non-Aboriginal origin. They are typical of widely distributed recorded Aboriginal pecked petroglyphs. Creation of this art would have required extensive knowledge of Aboriginal art styles and production techniques. There is no indication that metal objects were used in the production of the art, or evident depiction of non-indigenous subjects.

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Note added in press

Since submission of this paper another petroglyph (a track and cupule) has been reported along the same stretch of coastline. To date this has not been investigated by the authors. However, this additional finding would provide more support for the notion that the Middle Arm petroglyphs are remnants of a more widespread tradition of rock art production.